

Design & evaluation in the real world: communicators & advisory systems



1

The aims

- Show how design & evaluation are brought together in the development of interactive products.
- Show how different combinations of design & evaluation methods are used in practice.
- Describe the various design trade-offs & decisions that have to be made in the real world.

2

Key issues: From requirements to design

- which design cycle to use
- which combination of methods to use when designing & evaluating a product
- what happens when the product being developed is confidential and there are no users available to test it?
- how many users should be involved in tests?
- what to do with the evaluation findings
- how much to expect from users

3

Case study1: Designing mobile communicators

Two examples, for very different audiences:

- Nokia's mobile communicator
- Philips communicator for children

4

Designing Nokia's mobile communicator

- design cycle:
iterative user-centered approach
- which methods:
ethnographic research
scenarios and task models
- confidential product issues:
first in the market is key
evaluation must be very limited and no real users

5

Designing Nokia's mobile communicator (contd)

- physical aspects:
screen size
number of buttons versus functionality
- consistency issues
internal consistency (within mobile software)
external consistency (with desktop software)
- user testing
none before release
summative testing & questionnaires after

6

Designing Philips' communicator for children

- design cycle:
iterative and evolutionary
- which methods:
low-fidelity prototyping
participatory design
interface metaphors
- physical aspects:
color, shape, size, robustness
pen input
bags to protect screen

7

Designing Philips' communicator for children

- user involvement:
children involved throughout
prototypes evaluated constantly
invaluable insights for the designers
- lessons learned:
agree on assumptions in requirements
think of follow-on projects early on
users are not designers
act quick and dirty if necessary

8

Case study 2: A telephone response information system (TRIS)

- Interactive voice response systems are common in government offices and large companies. Do you know of examples that you have used?
- Why are these systems often so frustrating to use? Forming a mental model is difficult because there is no visual feedback and the user must remember the menu structure
- Many menus and deep menus are particularly difficult

9

Why was TRIS difficult to use?

- Having to remember the menu structure.
- The programmers traded computational elegance for usability, e.g., the system asked for social security number and employee identification number, confusing users who did not have both.
- TRIS was comprised of different systems each with its own interaction style. Users were not told this but when they moved between the systems they experienced sudden, unexplained changes.

10

How was TRIS evaluated?

- A combination of techniques were used:
 - a review of the literature provided information about problems with interactive voice response systems
 - expert reviews
 - GOMS analysis of the proposed redesign
- The redesign was implemented
 - usability tests confirmed that the redesigned system offered better usability than the original design

11

Why was using different methods valuable?

- The evaluators were able to build-up a broad picture of usability problems.
- Using GOMS and heuristic evaluation they could explore the potential benefits of the redesigned system.
- User testing enabled them to confirm that the redesigned system offered better usability.
- User satisfaction questionnaires confirmed that users preferred the redesigned system.

12

Key points

- Design involves trade-offs
- Design space for making changes when upgrading a product is limited
- Cycles of rapid prototyping and evaluation allow designers to examine alternatives
- Simulations are useful when evaluating systems used by large numbers of people
- Piecing together evidence from a variety of sources can be valuable